8.6 Public Health

8.6.1 Introduction

The City of Vernon (City) proposes to develop a power plant (VPP) on a 13.7-acre property at the southeast corner of Fruitland and Boyle avenues. The VPP will be a 914-megawatt (MW) net (at 65 degrees Fahrenheit [°F] with duct burners and evaporative cooling)/943-MW (gross) combined-cycle generating facility configured using three natural-gas-fired combustion turbines and one steam turbine. Two transmission line options are being considered to connect the plant to Southern California Edison's (SCE) Laguna Bell Substation. Natural gas for the facility will be delivered via approximately 2,300 feet of new 24-inch pipeline that will connect to Southern California Gas Company's (SoCalGas) existing gas transmission line (Line 765). Potable water for drinking, safety showers, fire protection, service water, and sanitary uses will be served from the City's potable water system through two 10-inch pipelines connecting to the City's water mains. One would connect in Boyle Avenue and the other one in Fruitland Avenue. Recycled water for industrial purposes will be provided by the Central Basin Municipal Water District (CBMWD) through a nominal 16-inch carbon steel (or if using high density polyethylene **[**HDPE], a 20-inch) water line connecting to its recycled water line in Boyle Avenue, adjacent to the plant site. The blowdown will be sent to Sanitation Districts of Los Angeles County (LACSD) via a new 2,400-foot section of City sanitary sewer line.

This subsection presents an assessment of risks to human health potentially associated with operation of the proposed facility, focusing on chemical substances[1] that may be emitted or released into the air. Air pollutants for which California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS) have been established are addressed in Subsection 8.1, Air Quality.

The principal concerns for public health are associated with emissions of chemical substances into the air during routine operation of the proposed facility. Chemical substances in ambient air that potentially pose risks to human health include byproducts from the combustion of natural gas and diesel fuel from the emergency diesel fire pump and drift from the cooling tower due to the use of recycled water.

Substances with established CAAQS or NAAQS, including oxides of nitrogen (NO_x), carbon monoxide(CO), oxides of sulfur (SO_x) and particulate matter less than 10 microns in diameter (PM_{10}) are addressed in the Ambient Air Quality section (see Subsection 8.1.3) of this AFC. However, some discussion of the potential health risks associated with these substances is presented in this section. Human health risks potentially associated with accidental releases of used/stored hazardous materials at the proposed facility (aqueous ammonia) are also discussed in this subsection.

[1] In this section, the term *chemical substances* refers to chemical substances in ambient air that are regulated by either the United States Environmental Protection Agency (USEPA) and/or the State of California. The California Office of Environmental Health Hazard Assessment (OEHHA) and the California Air Resources Board (CARB) use the term Toxic Air Contaminant (TAC), which currently includes over 244 chemical substances. The USEPA uses the term Hazardous Air Pollutants (HAP), and has currently identified 188 substances as HAPs all of which are presently included in California's list of TACs.

8.6.2 Laws, Ordinances, Regulations, and Standards

An overview of the regulatory process for public health issues is presented in this section. The relevant laws, ordinances, regulations and standards that affect public health and are applicable to this project are identified in Table 8.6-1. Table 8.6-1 also summarizes the primary agencies responsible for public health, as well as the general category of the public health concern regulated by each of these agencies. The conformity of the project to each of the LORS applicable to public health is also presented in this table, as well as references to the locations where each of these issues is addressed. Points of contact with the primary agencies responsible for public health are identified in Table 8.6-2.

TABLE 8.6-1
Summary of Primary Regulatory Jurisdiction for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Project Conformance
U.S. Clean Air Act California Clean Air Act California Health and Safety Code Section 39666	Public exposure to air pollutants	USEPA Region IX California Air Resources Board (CARB) South Coast Air Quality Management District (SCAQMD)	Based on results of the human health risk assessment (HRA) as per OEHHA guidelines, toxic contaminants do not exceed acceptable levels (see Section 8.6.4.2). Emissions of criteria pollutants will be minimized by applying LAER/BACT to the facility. Increases in emissions of criteria pollutants will be fully offset (Section 8.6.5.1).
Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Public exposure to chemicals known to cause cancer or reproductive toxicity	California Office of Environmental Health and Hazard Assessment (OEHHA)	Based on results of risk assessment as per California Air Pollution Control Officers Association (CAPCOA) guidelines, toxic contaminants do not exceed thresholds that require exposure warnings (see Section 8.6.4.2).
40 CFR Part 68 (Risk Management Plan)	Public exposure to regulated substances	USEPA Region IX City of Vernon, Environmental Health Department (EHD)	The facility will not be subject to 40 CFR Part 68 requirements because the quantities of regulated substances stored or handled will be below the threshold quantities.
Health and Safety Code Sections 25531 to 25541	Public exposure to regulated substances	Vernon EHD	A vulnerability analysis has been performed to assess potential risks from release of regulated substances (see Section 8.6.4.4).
Health and Safety Code Sections 44360 to 44366 (Air Toxics “Hot Spots” Information and Assessment Act—AB 2588)	Public exposure to toxic air contaminants from existing sources		Based on results of risk assessment as per OEHHA and ARB guidelines, toxic contaminants do not exceed acceptable levels.
SCAQMD Rule 402 Health and Safety Code Section 41700	Public exposure to toxic air contaminants	SCAQMD	Section 8.1.5.5.3 (Air Quality Consistency with Regulatory Requirements)
SCAQMD Rule 1401	Public exposure to toxic air contaminants	SCAQMD	The results of the HRA are below significance levels.

TABLE 8.6-1
Summary of Primary Regulatory Jurisdiction for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Project Conformance
SCAQMD Rule 1404	Prohibits the use of hexavalent chromium as a water treatment chemical in cooling towers	SCAQMD	No hexavalent chromium will be used by the project.

TABLE 8.6-2
Summary of Agency Contacts for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Regulatory Contact
U.S. Clean Air Act California Clean Air Act California Health and Safety Code Section 39666	Public exposure to air pollutants	USEPA Region IX CARB SCAQMD	Gerardo Rios USEPA Region IX 75 Hawthorne Street San Francisco, CA 94105 (415) 947-3974 Michael Tollstrup Project Assessment Branch California Air Resources Board 2020 L Street Sacramento, CA 95814 (916) 322-6026 John Yee South Coast Air Quality Mgmt District 21865 Copley Drive Diamond Bar, CA 91765 (909) 396-2531
Health and Safety Code 25249.5 et seq. (Safe Drinking Water and Toxic Enforcement Act of 1986—Proposition 65)	Public exposure to chemicals known to cause cancer or reproductive toxicity	OEHHA	Cynthia Oshita or Susan Long Office of Environmental Health and Hazard Assessment 1001 I Street Sacramento, CA 916-445-6900
40 CFR Part 68 (Risk Management Plan)	Public exposure to acutely hazardous materials	USEPA Region IX Vernon Environmental Health Department (EHD)	Gerardo Rios Lewis Pozzebon Environmental Health Department 4305 Vernon Ave. Vernon, CA 90058 (323) 583-8811 ext. 229
Health and Safety Code Sections 25531 to 25541	Public exposure to acutely hazardous materials	Vernon EHD CARB SCAQMD	Lewis Pozzebon Michael Tollstrup John Yee

TABLE 8.6-2
Summary of Agency Contacts for Public Health

LORS	Public Health Concern	Primary Regulatory Agency	Regulatory Contact
Health and Safety Code Sections 44360 to 44366 (Air Toxics "Hot Spots" Information and Assessment Act—AB 2588)	Public exposure to toxic air contaminants from existing sources	CARB SCAQMD	Mike Tollstrup John Yee
SCAQMD Rule 402 Health and Safety Code Section 41700	Public exposure to toxic air contaminants	SCAQMD	John Yee
SCAQMD Rule 1401	Public exposure to toxic air contaminants	SCAQMD	John Yee
SCAQMD Rule 1404	Prohibits the use of hexavalent chromium as a water treatment chemical in cooling towers	SCAQMD	John Yee

8.6.3 Affected Environment

The City proposes to develop a power plant (Vernon Power Plant, or VPP). It will be 914-MW net combined-cycle generating facility configured using three natural-gas-fired combustion turbines and one steam turbine. The VPP will connect to the electrical transmission system via new double-circuit 230-kV line. Natural gas for the facility will be delivered via a new pipeline that will connect to SoCalGas existing gas transmission line.

Recycled water, for cooling tower makeup and other industrial uses, will be provided by CBMWD through a recycle water pipeline located in Boyle Avenue, adjacent to the site. Cooling water will be cycled in the cooling tower five times. The blowdown will be sent to LACSD via the City's sanitary sewer. Potable water for drinking, safety showers, fire protection, service water, and sanitary uses will be served from the City's potable water system. Sanitary wastewater disposal will be sent to LACSD via the City's sanitary sewer system. A new sewer line connection will be added to connect to the County's system.

The site is located southeast of the intersection of Fruitland and Boyle avenues on a 13.7-acre parcel. Access to the site will be from Fruitland Avenue. There are no sensitive receptors (such as schools, daycare facilities, convalescent centers, or hospitals) in the immediate vicinity of the project site. The nearest sensitive receptor is a senior high school located approximately 0.75 mile south, southwest of the project site. There are a few residences in the vicinity of the site. Appendix 8.6A contains the location, name, and coordinates for the sensitive receptors within a 6-mile radius of the project site. A map of the sensitive receptors from that appendix is provided in Figure 8.6-1. Figure 8.6-2a to 2d provides a map of churches and parks within 3 miles of the project site. Further description of sensitive receptors within a 6-mile radius of the project site is presented in Hazardous Materials, Subsection 8.12. A figure showing all terrain areas exceeding the elevation of the stack, within a 10-mile radius of the project is provided in Figure 8.6-3.

The terrain within a 10-mile radius of the project is provided under separate cover on 7.5-minute U.S. Geological Survey (USGS) Quad maps, five sets of which have been submitted to the California Energy Commission (CEC). Figure 8.6-4 provides an index of the 7.5-minute Quad maps within the project vicinity.

Appendix 8.6B contains a listing of the publicly available health studies in the project area.

8.6.4 Environmental Analysis

Potential environmental impacts associated with the project that are addressed in this section are limited to human exposure to chemical substances of concern emitted into the air. The human health risks potentially associated with these substances were evaluated in a health risk assessment. Table 8.6-3 presents the chemical substances potentially emitted to the air from the proposed facility. No air toxics are expected to be emitted from the oil/water separator or emergency fire pump fuel tank.

TABLE 8.6-3
Chemical Substances Potentially Emitted to the Air from VPP

Criteria Pollutants

- Carbon monoxide
- Oxides of nitrogen
- Particulate matter

Noncriteria Pollutants (Toxic Pollutants)

- Ammonia
- Acetaldehyde
- Acrolein
- 1,3-Butadiene
- Benzene
- Chlorobenzene
- Diesel Exhaust Particulate Matter
- Ethylbenzene
- Formaldehyde
- Hexane
- Hydrogen chloride
- Propylene
- Propylene oxide
- Toluene
- Xylene

Noncriteria Pollutants (Continued)

- Polycyclic aromatic hydrocarbons (PAHs)
  - Benzo(a)anthracene
  - Benzo(a)pyrene
  - Benzo(b)fluoranthene
  - Benzo(k)fluoranthene
  - Chrysene
  - Dibenz(a,h)anthracene
  - Indeno(1,2,3-cd)pyrene
- Naphthalene
- Arsenic
- Antimony
- Barium
- Berylllium
- Cadmium
- Chromium
- Cyanide
- Copper
- Lead
- Manganese
- Mercury
- Nickel
- Selenium
- Silver
- Thallium
- Zinc

8.6.4.1 California Environmental Quality Act Significance Criteria for Health Impacts

SCAQMD CEQA guidelines define significance thresholds for cancer health impacts as equal to or greater than 10×10^{-6} (10 in a million) for the Maximum Exposed Individual (MEI) cancer risk. The SCAQMD guidelines also define significance thresholds for the non-cancer health effects as a project-wide MEI hazard index equal to or greater than 1.

8.6.4.2 Criteria Air Pollutants

Emissions of criteria pollutants will adhere to NAAQS or CAAQS as discussed in the Air Quality section (see Subsection 8.1). The proposed facility also will include emission control technologies necessary to meet the required emission standards specified for criteria pollutants under South Coast Air Quality Management District (SCAQMD) rules. Offsets will be required for emissions of criteria pollutants that exceed specified thresholds, to assure that the project will not result in an increase in total emissions in the vicinity. Additionally, air dispersion modeling results (presented in the Air Quality section, Subsection 8.1) show that emissions will not result in concentrations of criteria pollutants in air that exceed ambient air quality standards (either NAAQS or CAAQS) for those pollutants for which the area is designated as attainment. These standards are intended to protect the general public with a wide margin of safety. Therefore, the project is not anticipated to have a significant impact on public health from emissions of criteria pollutants.

8.6.4.3 Chemical Substances of Potential Concern in Ambient Air

For the purposes of determining the potential maximum ambient concentrations of chemical substances that may be emitted, VPP chemical substance emissions were modeled with the combustion turbines operated at base load at an ambient temperature of 65°F. Duct burner fuel usage was incorporated into the chemical substance emission estimates assuming 8,760 hours of turbine operations and 5,000 hours of duct burner operations per year. The emission estimates also assumed the cooling tower was operated at the maximum recirculation rate for 8,760 hours per year and that the fire pump was operated at its maximum rate for 200 hours[2] per year. These operating conditions represent the maximum emissions profile (being permitted) for the VPP.

Potential impacts associated with emissions of chemical substances of potential concern into the air from the proposed facility were addressed in a health risk assessment, presented in Appendix 8.6C. The risk assessment was prepared using guidelines developed under the South Coast Air Quality Management District's July 2005 *Risk Assessments Procedures for Rules 1401 and 212 Version 7*. For detailed risk assessment, such as the assessment prepared in this evaluation, these Procedures include the *SCAQMD July 2005 Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588)*. Those guidelines supplement the *Air Toxics Hotspots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2003) and the CARB (California Air Resources Board) Recommended Interim Risk Management Policy for Inhalation-based Residential Cancer Risk (CARB 2003). The chemical substances of concern that were addressed in the assessment are listed in Table 8.6-4, along with their respective published OEHHA health effect values.

[2] The emergency diesel fire pump is expected to operate up to 50 hours per year for testing and maintenance. However, in order to analyze the worst-case public health impacts from the Project, it was assumed that the emergency diesel fire pump was operated at the maximum annual hours per year.

TABLE 8.6-4
Risk Assessment Health Values for Substances of Potential Concern

	Cancer Risk		Non-cancer Effects	
Compound	**Inhalation Cancer Potency (mg/kg-day)**	**Oral Slope Factor $(\mu g/m^3)^{-1}$**	**Chronic Inhalation Reference Exposure Level ($\mu g/m^3$)**	**Acute Inhalation Reference Exposure Level ($\mu g/m^3$)**
Acetaldehyde	1.0 E-2	-	9.0E+00	--
Acrolein	--	--	6.0 E-02	1.9E-01
Ammonia	--	--	2.0E+02	3.2E+03
Antimony	--	--	2.0E-01	--
Arsenic*	1.2E+01	1.5 E+00	3.0E-02	1.9E-01
Benzene	1.0E-01		6.0E+01	1.3E+03
Beryllium*	8.4E+00		7.0E-03	
1,3-Butadiene	6.0E-01		2.0E+01	--
Cadmium*	1.5E+01		2.0E-02	--
Chromium VI*	5.1E+02		2.0E-1	--
Chlorobenzene	--	--	1.0E+03	--
Copper	--	--	2.4E+00	1.0E+02
Ethylbenzene	--	--	2.0E+03	--
Diesel exhaust particulate matter	1.1E+00	--	5.0 E+00	--
Formaldehyde	2.1E-02		3.0E+00	9.4E+01
Hexane	--	--	7.0E+03	--
Hydrochloric acid	--	--	9.0E+00	2.1E+03
Lead	4.2E-02	8.5E-03	--	--
Manganese	--	--	9.0E-01	--
Mercury*	--	--	9.0E-02	1.8E+00
Naphthalene	1.2E-01	--	9.0E+00	--
Nickel	9.1E-01		5.0E-02	6.0E+00
PAHs	3.9E+00	1.2E+01	--	--
Propylene	--	--	3.0E+03	--
Propylene oxide	1.3E-02		3.0E+01	3.1E+03
Selenium	--	--	2.0E+01	--
Toluene	--	--	3.0E+02	3.7E+04
Xylene	--	--	7.0E+02	2.2E+04
Zinc	--	--	3.5E+01	--

Source: OEHHA/ARB, 2005
* These compounds are also listed, and were evaluated, for oral non-cancer health effects

Emissions of substances of potential concern that may be associated with the proposed facility (gas-fired turbines and emergency diesel fire pump) were estimated using emission factors approved by the South Coast Air Quality Management District. Cooling tower emissions of substances of potential concern were estimated based on a mass balance technique using the water supply quality, cooling tower maximum cycles of concentration, water recirculation rate, and mist eliminator drift rate. No emissions from the oil/water separators and emergency diesel fire pump fuel tank were included because a review of the Material Safety Data Sheets indicated no substances of potential concern would be present in lubricating oil and diesel fuel. Detailed calculations in support of these emissions are shown in Appendix 8.1

Concentrations of these substances in ambient air associated with the potential emissions were estimated using the SCAQMD-approved HARP software package. The HARP software includes the USEPA's ISCST3 dispersion model, which estimates both short-term and long-term average ambient concentrations, at receptor locations, for use in a risk assessment. ISCST3 accounts for site-specific terrain, meteorological conditions, and emissions parameters (such as stack exit velocities and temperatures) in order to estimate ambient concentrations. Health risks potentially associated with the estimated concentrations of chemical substances in ambient air were characterized in terms of excess lifetime cancer risks (for substances listed by OEHHA as cancer causing), or comparison with reference exposure levels for non-cancer health effects (for substances listed by OEHHA with non-cancer causing effects).

The term Maximum Exposed Individual (MEI)[3] is taken from OEHHA risk assessment guidelines (OEHHA, 2003) and refers to an individual resident (MEIR) or worker (MEIW) that is located at the point where the highest ambient concentrations of modeled chemical substances associated with facility emissions are predicted. Cancer risk and non-cancer health hazard were estimated for both the MEIR and the MEIW based on the modeled ambient concentrations of substances of potential concern.

Receptor locations were evaluated to be residential or industrial, based on aerial photographs of the vicinity surrounding the facility. OEHHA risk assessment guidelines (OEHHA 2003) also require that, cancer risk and non-cancer health hazard values at each sensitive receptor (such as schools, hospitals, day-care centers) located within the zone of impact be estimated, where the zone of impact included the region surrounding the facility modeled to show a potential maximum added lifetime cancer risk (all pathways 70-year exposure) of one in one million or greater. For non-carcinogens, the zone of impact is defined as bounding the area surrounding the facility modeled to show a potential hazard index of greater than or equal to one half. The analysis in Appendix 8.6C shows the area with a modeled residential (70-year exposure) potential maximum added lifetime cancer risk of greater than one in a million extends no more than 150 feet past the property line and does not include any potential sensitive or residential receptors. There is no modeled hazard index of greater than 0.5; therefore, there is no zone of impact for non-cancer effects.

[3] The terms MEI, MEIR, and MEIW refer to a receptor location of maximum ambient exposure and do not incorporate a reference to cancer risk or to non-cancer acute or chronic exposures. In the South Coast Air Quality Management District, Rules 1401 and 1402 refer to Maximum Individual Cancer Risk (MICR) which, by OEHHA terminology would be termed the MEI for Cancer effects.

The evaluation of potential non-cancer health effects from exposure to short-term and long-term concentrations in air was performed by comparing modeled concentrations at the MEIR and MEIW with reference exposure levels (RELs). An REL is a concentration in ambient air at or below which no adverse health effects are anticipated. Potential non-cancer effects were evaluated by calculating a ratio of the modeled concentration in air and the REL. This ratio is the hazard quotient. The inhalation cancer potency and oral slope factor values and RELs used to characterize health risks associated with modeled concentrations in air were obtained from the *Consolidated Table of Office of Environmental Health and Hazard Assessment (OEHHA)/ Air Resources Board (ARB) Approved Risk Assessment Health Values*.

This health risk assessment included potential health impacts from inhalation, skin contact, and oral pathways as required by OEHHA guidelines. Additionally, this assessment included highly-conservative assumptions such as a 70-year exposure duration for residential receptors and a 40-year exposure duration for commercial/industrial receptors. Additional conservative assumptions included extremely high exposure rates such as the 95th percentile breathing rate of 393 liters of air/kg-day were included.

8.6.4.3.1 Potential Health Risks Associated with Chemical Substances in Ambient Air

The MEIR potential maximum excess life time cancer risk was estimated to be 0.568 in a million, and the MEIW lifetime cancer risk was estimated to be 0.493 in a million. Excess lifetime cancer risks less than 10×10^{-6} (10 in a million) are unlikely to represent public health impacts that require additional air pollution control applied to facility emissions.

For residential receptors, benzene and formaldehyde emissions from the turbines and chromium from the cooling towers have the highest potential to contribute to the excess cancer risk, but the contribution from each pollutant is less than 0.2 in a million. The dominant exposure pathways for benzene, formaldehyde and chromium are through inhalation.

The maximum hazard index for acute non-carcinogenic substances is 0.0544. The hazard index for chronic non-carcinogenic substances is 0.0222 for the residential MEI and also 0.0222 for the commercial/industrial MEI.

HARP modeling results are presented in Appendix 8.6C.

8.6.4.4 Hazardous Materials

Hazardous materials will be used and stored at the facility. The quantities of hazardous materials proposed to be stored onsite and a description of their uses are presented in Subsection 8.12. Use of hazardous materials at the proposed facility will be in accordance with standard practices for storage and management of hazardous materials. Normal use of hazardous materials, therefore, will not pose significant impacts to public health. While mitigation measures will be in place to prevent releases, accidental releases that could migrate offsite, resulting in potential impacts to the public.

The California Health and Safety Code Sections 25531 to 25541 and Code of Federal Regulations (CFR) Title 40 Part 68 under the Clean Air Act establish emergency response planning requirements for some of the hazardous materials. The hazardous materials regulated under these regulations are termed as regulated substances. These regulations require preparation of a Risk Management Plan (RMP), which is a comprehensive program to

identify hazards and predict the areas that may be affected by a release of a regulated substance. The only regulated substances to be used at the facility above California regulatory thresholds is aqueous ammonia as discussed in Subsection 8.12. This regulated substance may generate hazardous gases that could migrate offsite when released.

A vulnerability analysis was performed to assess potential risks to humans at various distances from the site if a release of ammonia were to occur. The results of the vulnerability analysis showed that the offsite concentrations at the VPP fenceline would not exceed either the California Energy Commission's stringent 75-parts-per-million (ppm) ammonia significance level. Therefore, no public health impacts are expected from the storage and use of regulated substances at the VPP (see Subsection 8.12, Hazardous Materials Handling).

8.6.4.5 Operation Odors

Small amounts of ammonia used to control oxides of nitrogen (NO_x) emissions may escape up the exhaust stack but would not produce operational odors. The expected exhaust gas ammonia concentration, known as ammonia "slip," will be less than 5 ppm. After mixing with the atmosphere, the concentration at ground level will be far below the detectable odor threshold of 5 ppm that the Compressed Gas Association has determined to be acceptable. Therefore, potential ammonia emissions are not expected to create objectionable odors.

8.6.5 Cumulative Impacts

In October 1997, the MATES-II study was initiated as part of the Environmental Justice Initiatives adopted by the SCAQMD Governing Board. It consisted of a comprehensive monitoring program, an updated emissions inventory, and a modeling effort to characterize health risks associated with human exposures to ambient concentrations of Toxic Air Contaminants (TACs) in the Southern California Air Basin (SCAB). The monitoring network consisted of 10 fixed sites and three mobile platforms that sampled at 14 additional communities. Over 30 TACs were measured, including both gases and particulate matter.

The results of the MATES-II study estimated that the excess lifetime carcinogenic risk from exposures to airborne TACs in the SCAB averages about 1,400 in a million (1.4×10^{-3}), meaning that an individual exposed over a 70-year lifetime would have about a 0.14 percent additional chance of contracting cancer. The estimated carcinogenic risk was found to be rather uniform across the Basin. For example, the risk ranged from about 1,120 in a million to about 1,740 in a million for the 10 fixed monitoring sites.

The MATES-II study showed that mobile sources (e.g., cars, trucks, trains, ships, and aircraft) represent the greatest contributors to the estimated risks. About 70 percent of all carcinogenic risk is attributed to diesel particulate matter (DPM) emissions; about 20 percent is attributed to other toxics associated with mobile sources (including benzene, butadiene, and formaldehyde); about 10 percent of all risk is attributed to emissions from stationary sources (which include industries and other businesses, such as dry cleaners and chrome plating operations.)

The SCAQMD has established a project significance threshold for maximum incremental lifetime cancer risk of 10 in a million. Background levels of TACs in SCAB result in risks that greatly exceed this significance threshold and state and federal programs are underway to identify and control the sources contributing to TAC emissions and associated risks.

In 1998, the California Office of Environmental Health Hazard Assessment (OEHHA) listed diesel particulate matter (DPM), a primary combustion product from diesel engines, as a TAC. New standards have been adopted by CARB and the United States Environmental Protection Agency (USEPA) to reduce DPM emissions from new on-road heavy duty vehicles. USEPA estimates that, when fully implemented, the new program will result in PM emission levels, and the corresponding health impacts that are 95 percent below today's levels, (USEPA 2000). Further, the current California Air Resources Board (CARB) emissions inventory shows DPM emission levels will decrease in Los Angeles County by 22 percent below today's levels by 2010.

The MEIR potential maximum excess life time cancer risk for the proposed project have been estimated to be 0.568 in a million, and the MEIW lifetime cancer risk was estimated to be 0.493 in a million. Both are substantially below the significance threshold of 10 in a million. The risks are even lower at more distant locations. Given the conservatism in the estimate, the actual risks would likely be much smaller. The maximum hazard index for acute non-carcinogenic substances is 0.0544, which is well below the significance level of 1.0 at the location of maximum impact.

Federal and state diesel motor vehicle emission reduction programs are in place and projected to create significant reductions in DPM emissions, and corresponding health impacts, in the region, and current SCAQMD health-based regulations ensure that new sources of air pollutants are not introduced that will create significant health impacts. Combined, these factors will ensure that the project's potential net health impact would not be cumulatively considerable.

8.6.6 Mitigation Measures

8.6.6.1 Criteria Pollutants

Emissions of criteria pollutants will be minimized by applying Best Available Control Technology (BACT) to the emission sources, which will include the use of only natural gas in the combustion turbines.

The proposed project location is in an area that is designated by the state as nonattainment for ozone, carbon monoxide[4], and particulate matter (PM). Therefore, all increases in emissions of NO_x, volatile organic compounds (VOC), carbon monoxide, particulate matter with an aerodynamic diameter less than a nominal 10 micrometers (PM_{10}), and sulfur oxides (SO_x) must be fully offset if emissions exceed specified trigger limits. The combination of using BACT and providing emission offsets will result in no net increase in criteria pollutants. Therefore, further mitigation of emissions is not required to protect public health.

8.6.6.2 Chemical Substances of Potential Concern in Ambient Air

Emissions of chemical substances of potential concern to the air will be minimized through the use of natural gas as the only fuel at the proposed facility. As demonstrated in the health risk analysis, no significant public health impact is expected. Therefore, no mitigation is proposed.

[4] A request for redesignation from non attainment to attainment was issued by the SCAQMD in July 2005.

8.6.6.3 Hazardous Materials

Mitigation measures for hazardous materials are presented below and discussed in more detail in Subsection 8.12. Potential public health impacts from the use of hazardous materials are only expected to occur as a result of an accidental release. The plant has many safety features designed to prevent and minimize impacts from the use and accidental release of hazardous materials. The VPP will include the following design features:

- Curbs, berms, and/or concrete pits will be provided where accidental release of chemicals may occur.
- A fire protection system will be included to detect, alarm, and suppress a fire, in accordance with the applicable LORS.
- Construction of the aqueous ammonia storage system will be in accordance with applicable LORS.

An RMP for the facility will be prepared prior to commencement of facility operations. The RMP will estimate the risk presented by handling ammonia at the facility. The RMP will include a hazard analysis, offsite consequence analysis, seismic assessment, emergency response plan, and training procedures. The RMP process will accurately identify and propose adequate mitigation measures to reduce the risk to the lowest possible level.

A safety program will be implemented and will include safety training programs for contractors and operations personnel, including instructions on: (1) the proper use of personal protective equipment, (2) safety operating procedures, (3) fire safety, and (4) emergency response actions. The safety program will also include programs on safely operating and maintaining systems that use hazardous materials. Emergency procedures for VPP personnel will include power plant evacuation, hazardous material spill cleanup, fire prevention, and emergency response.

Areas subject to potential leaks of hazardous materials will be paved and bermed. Incompatible materials will be stored in separate containment areas. Containment areas will be drained to either an oily waste collection sump or to the wastewater neutralization tank. Also, piping and tanks exposed to potential traffic hazards will be additionally protected by traffic barriers.

8.6.7 References

CARB. 2003. Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk.

Hutt. P.B. 1985. "Use of Quantitative Risk Assessment in Regulatory Decision-making Under Federal Health and Safety Statutes," in *Risk Quantitation and Regulatory Policy*. D.G. Hoel, R.A. Merrill and F.P. Perera, Eds. Banbury Report 19, Cold Springs Harbor Laboratory.

OEHHA. 2003. Air Toxics Hotspots Program Guidance Manual for Preparation of Health Risk Assessments.

SCAQMD, 2000. Multiple Air Toxics Emissions Study (MATES-II). December.

SCAQMD. 2005. Supplement Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588). July.

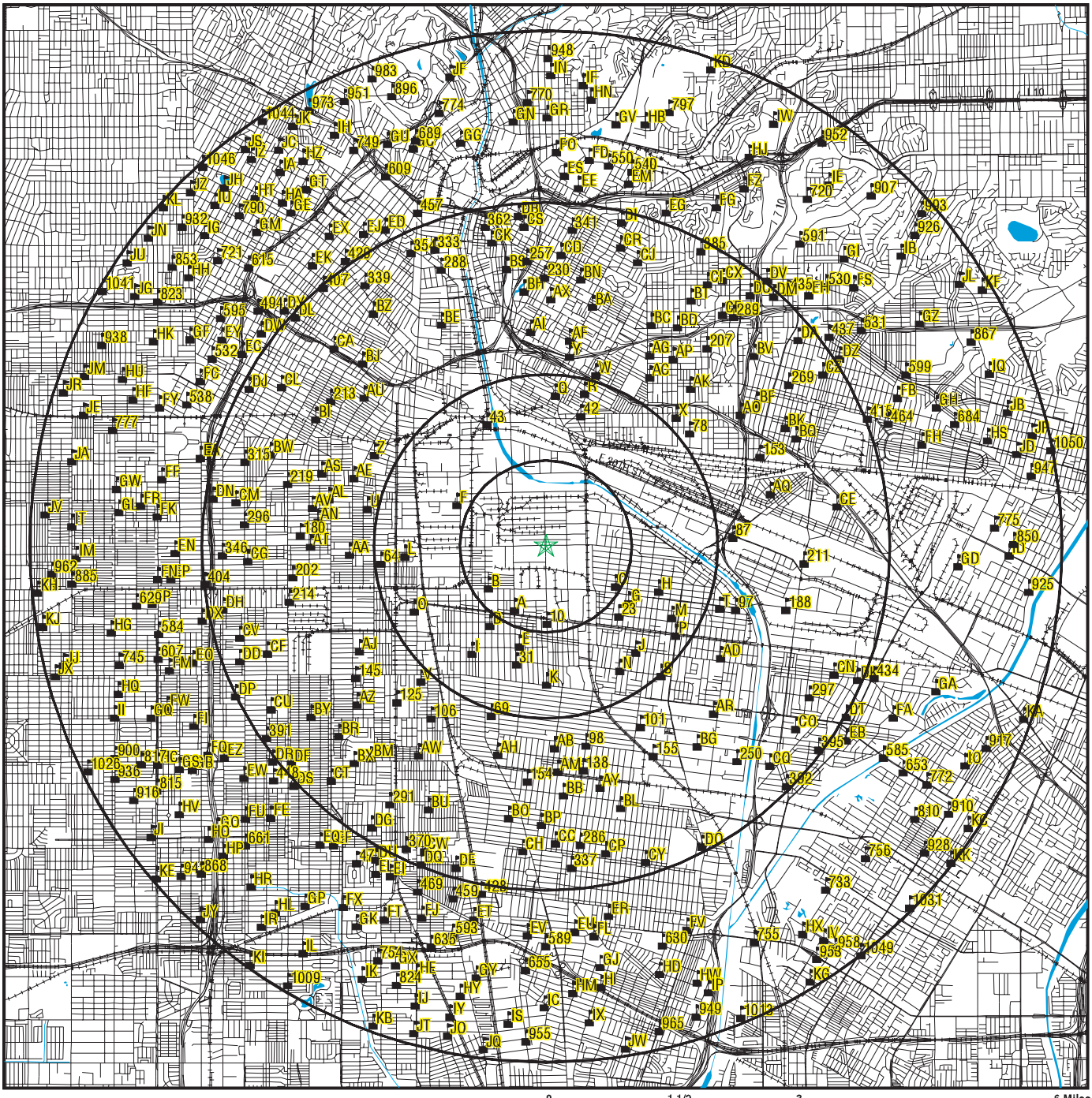
SCAQMD. 2005. Risk Assessment Procedures for Rules 1401 and 212, Version 7.0 SCAQMD July.

Travis, C.C., E.A.C. Crouch, R. Wilson and E.D. Klema. 1987. "Cancer Risk Management: A Review of 132 Federal Regulatory Cases." *Environ. Sci. Technol*. 21: 415-420.

USEPA. 2005. Guidelines for Carcinogen Risk Assessment. Office of Health and Environmental Assessment. EPA/600/P-92/003C. March.

USEPA, 2000. Regulatory Impact Analysis: Heavy Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements, EPA420-R-00-026. December.

RECEPTOR MAP - 1498213.1s



★ Target Property
Roads
Waterways
Environmental or Public Receptor
Federal Lands Linear Features
Federal Lands Area

0 1 1/2 3 6 Miles

SOURCE: ENVIRONMENTAL DATA RESOURCES, 2005

FIGURE 8.6-1
SENSITIVE RECEPTORS
WITHIN 6 MILES OF VPP SITE
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

D102005001RDD_017 (11/7/05)

CH2MHILL

CHURCHES

1 Abyssinia Baptist Church
2 All Nation Baptist Church
3 Apostolic Assembly
4 Asamblea Apostolica
5 Associated Churches Of Christ
6 Bell Foursquare Church
7,8 Bell Friends Church
9 Bethany Baptist Church
10 Bethel Missionary Baptist Chruch
11 Bethlehem Temple Inc
12 Bible Baptist Church
13 Boyle Heights Foursquare Church
14 Camino Al Cielo
15 Catedral Sacrada Familia
16 Centro Christano La Hermosa
17 Centro Evangelistico Church
18 Centro Evangelistico Ebenezer
19 Christian Science Church
20 Church Of Christ
21 Church Of Christ Mount Zion
22 Church Of God In Christ
23 Church Of God Of Prophecy
24 Church Of Jesus Christ
25,26,27 Church Of Jesus Christ Of Lds
28 Church Of The Nazarene
29 Community Church
30 Community Presbyterian Church
31 Cudahy Roman Catholic Mission
32 Davar Kingdom Of God
33 Descending Like Dove Minstry
34 E Los Angeles Tenrikyo Flshp
35 Ebenezer Baptist Church
36 El Sendero De La Cruz
37 Emmanuel Church Of God.Christ
38 Evangelica Baptist Church
39 Evangelical Temple.Tabernacle
40 Evangelistic Outreach Center
41 Everlasting True Vine Baptist
42 Faith Outreach Ctr
43 First Assembly Of God
44 First Baptist Church
45 First Baptist Church Of Bell
46 First Baptist Church.Commerce
47 First Baptist Church.Maywood
48 First Goodwill Baptist Church
49 First Innercity Assembly.God
50 Freedom Missionary Baptist Church
51 Friendly Will Baptist Church
52 Full Gospel Church Of God
53 Grace Lutheran Church
54 Greater Holy St John Baptist
55 Greater Mount Rose Baptist Church
56 Greater Mt Zion Baptist Church
57 Greater Olivet Baptist Church
58 Harvest Tabernacle
59 Hermandad Mexicana Nacional
60 Holy Angels Church Of The Deaf
61 Holy Apostolic Church
62 Hooper Avenue Foursquare Church
63 House Of Prayer Uhc Of A
64 Iberoamerica Assembly Of God
65 Iglesia Apostolica
66 Iglesia Asamblea De Dios Sinai
67 Iglesia Bautista.Resurreccion
68,69 Iglesia Bethania
70 Iglesia Christiana Fundamental
71 Iglesia Cristiana Alpha
72 Iglesia Cristiana Pentecostes
73 Iglesia Cristiana Vencedores
74 Iglesia De Dio Companerismo
75 Iglesia Del Cuerpo De Cristo
76,77 Iglesia Del Dios Vivo
78 Iglesia Del Senor
79 Iglesia El Buen Pastor
80 Iglesia Fuente De Agua Viva
81 Iglesia Fundamental La Gran
82 Iglesia Metodista Unida De
83 Iglesia Monte Sinai
84 Iglesia Universal Del Reino
85 Ingelsia De Dios
86 International Pentecostal City
87 Israel Missionary Baptist
88 Israel Missionary Baptist Church
89,90,91 Jehovah's Witnesses
92 Jehovah's Witnesses Walnut Pk
93 Jesuaristo Rey De Reyes
94 Jesus Bencomo Century 21
95 June Cobb Church Of Religious
96 Korean Chunbukyo La Church
97 Latin American Council Church
98 Liberty Church.God In Christ
99 Living Gospel Church
100 Los Angeles City Baptist Church
101 Masjid Bilal Islamic Center
102 Maywood Church Of The
103 Mc Coy Memorial Baptist Church
104 Mc Kinley Avenue Baptist Church
105 Metropolitan Missionary Bapt
106 Ministerios Cordero
107 Miramonte Blvd Seventh.Day Adv
108 Mision Quadrangular Emmanuel
109 Mission Cristiana Bethel
110 Morning Star Baptist Church
111 Morning Star Church Of God
112 Mt Carmel Missionary Baptist
113 Mt Olive Baptist Church
114 Mt Olive Church.God In Christ
115 Mt Zion Missionary Baptist Church
116 Mt Zion Towers
117 Nation Pentecostal Church
118 New Deliverance Twenty First
119 New Hope Baptist Church
120 Nueva Vision En El Espirito
121 Our Lady Of Victory Church
122 Our Lady Of Victory Social Ctr
123 Palestine Missionary Baptist
124 Panamericana Spanish 7th.Day
125 Peniel Baptist Church
126 Pentecostal Chapel
127 Phillips Temple Cme Church
128 Pilgrim Community Church
129 Pilgrim's Hope Bible Church
130 Pleasant View Baptist Church
131 Positive Realism Church
132 Praise Chapel
133 Praise Chapel Fellowship
134 Praise Tabernacle Maywood
135 Prayer Tower
136,137 Primera Iglesia Bautista
138 Principe De Paz
139 Redeemer Lutheran Church
140 Resurrection Church
141 Richland Baptist Church
142 Salvation Army
143 Santa Cruz Lutheran Church
144 Santa Isabel Church
145 Santa Maria De Guadalupe
146 Santa Martha Ccd
147 Santo Nino De Atocha Iglesia
148 Second Holy Grove Missionary
149 Seventh Day Adventist Central
150 Seventh Day Adventist Spanish
151 Seventh.Day Adventist Church
152 Shiloh Missionary Baptist Church
153 Shuto La Tenrikyo Fellowship
154 Southland Christian Church
155 St Aloysius Gonzaga Church
156 St Clements Episcopal Church
157 St John Bosco
158 St John Christian Assembly
159 St Mark Baptist Church
160 St Martha's Church
161 St Mary's Ethiopian Apostolic
162 St Matthias Church
163 St Matthias Church Catechism
164 St Odilia Catholic Church
165 St Patrick's Catholic Church
166 St Rose Of Lima Church
167 Strait.Way Apostolic Church
168 Templo Bethesda
169 Templo Calvario
170 Third Baptist Church Inc
171 Traveler's Rest Baptist Church
172 Triumph The Church & Kingdom
173 True Grace Baptist Church
174 Union Hill Baptist Church
175 United House Of Prayer
176 United Methodist Church
177 Universal Christian Gnostic
178 Victory Baptist Church
179 Victory Outreach South Gate
180 Victory Tabernacle Boyle
181 Visions Of Heaven Cogic
182 Wadsworth Church Of God
183 Washington Memorial Chr.Christ
184 World Impact Of Watts
185 World Mission Marantha
186 Zion Lutheran Church
187 Zion Temple Community Church

PARKS

188 Huntington Park Parks & Rec
189 Maywood Parks & Recreation
190 Salazar Park
191 Lugo Park
192 Bethune Park
193 Roosevelt Park
194 Bandini Park
195 Bristow Park Branch Library
196 Los Angeles Parks & Recreation
197 Clara Street Park
198 Hostetter Playground
199 Salazar Park
200 Pixley Park
201 Evergreen Recreation Center
202 Obregon Park
203 Boyle Heights Sports Center Park
204 Ramon Garcia Recreation Center
205 Hollenbeck Park
206 Trinity Recreation Center
207 Central Recreation Center Park
208 Ross Snyder Recreation Center
209 Theresa Lindsay Park
210 South Park
211 Fred Roberts Recreation Center
212 Slauson Recreation Center
213 Bethune Park
214 Roosevelt Park
215 Roosevelt Park
216 Colonel Leon H Washington Park
217 Miles Park
218 Corona Park
219 Maywood Park
220 Debs Park
221 Little Bear Park
222 Municipal Park
223 Lugo Park
224 Clara Park
225 Cudahy Park
226 Veterans Park
227 Marlow Park

CHURCH
PARK
VERNON POWER PLANT
3-MILE BUFFER

0 2,000 Feet

SCALE IS APPROXIMATE

FIGURE 8.6-2a
CHURCHES AND PARKS WITHIN 3-MILES OF VPP SITE
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\VPP3\VPP3_8_6-1B_SENSITIVE_RECEPTORS_CHURCHES.MXD 6/13/2006 13:58:01

CHURCHES

1 Abyssinia Baptist Church
2 All Nation Baptist Church
3 Apostolic Assembly
4 Asamblea Apostolica
5 Associated Churches Of Christ
6 Bell Foursquare Church
7,8 Bell Friends Church
9 Bethany Baptist Church
10 Bethel Missionary Baptist Chruch
11 Bethlehem Temple Inc
12 Bible Baptist Church
13 Boyle Heights Foursquare Church
14 Camino Al Cielo
15 Catedral Sacrada Familia
16 Centro Christano La Hermosa
17 Centro Evangelistico Church
18 Centro Evangelistico Ebenezer
19 Christian Science Church
20 Church Of Christ
21 Church Of Christ Mount Zion
22 Church Of God In Christ
23 Church Of God Of Prophecy
24 Church Of Jesus Christ
25,26,27 Church Of Jesus Christ Of Lds
28 Church Of The Nazarene
29 Community Church
30 Community Presbyterian Church
31 Cudahy Roman Catholic Mission
32 Davar Kingdom Of God
33 Descending Like Dove Minstry
34 E Los Angeles Tenrikyo Flshp
35 Ebenezer Baptist Church
36 El Sendero De La Cruz
37 Emmanuel Church Of God.Christ
38 Evangelica Baptist Church
39 Evangelical Temple.Tabernacle
40 Evangelistic Outreach Center
41 Everlasting True Vine Baptist
42 Faith Outreach Ctr
43 First Assembly Of God
44 First Baptist Church
45 First Baptist Church Of Bell
46 First Baptist Church.Commerce
47 First Baptist Church.Maywood
48 First Goodwill Baptist Church
49 First Innercity Assembly.God
50 Freedom Missionary Baptist Church
51 Friendly Will Baptist Church
52 Full Gospel Church Of God
53 Grace Lutheran Church
54 Greater Holy St John Baptist
55 Greater Mount Rose Baptist Church
56 Greater Mt Zion Baptist Church
57 Greater Olivet Baptist Church
58 Harvest Tabernacle
59 Hermandad Mexicana Nacional
60 Holy Angels Church Of The Deaf
61 Holy Apostolic Church
62 Hooper Avenue Foursquare Church
63 House Of Prayer Uhc Of A
64 Iberoamerica Assembly Of God
65 Iglesia Apostolica
66 Iglesia Asamblea De Dios Sinai
67 Iglesia Bautista.Resurreccion
68,69 Iglesia Bethania
70 Iglesia Christiana Fundamental
71 Iglesia Cristiana Alpha
72 Iglesia Cristiana Pentecostes
73 Iglesia Cristiana Vencedores
74 Iglesia De Dio Companerismo
75 Iglesia Del Cuerpo De Cristo
76,77 Iglesia Del Dios Vivo
78 Iglesia Del Senor
79 Iglesia El Buen Pastor
80 Iglesia Fuente De Agua Viva
81 Iglesia Fundamental La Gran
82 Iglesia Metodista Unida De
83 Iglesia Monte Sinai
84 Iglesia Universal Del Reino
85 Ingelsia De Dios
86 International Pentecostal City
87 Israel Missionary Baptist
88 Israel Missionary Baptist Church
89,90,91 Jehovah's Witnesses
92 Jehovah's Witnesses Walnut Pk
93 Jesuaristo Rey De Reyes
94 Jesus Bencomo Century 21
95 June Cobb Church Of Religious
96 Korean Chunbukyo La Church
97 Latin American Council Church
98 Liberty Church.God In Christ
99 Living Gospel Church
100 Los Angeles City Baptist Church
101 Masjid Bilal Islamic Center
102 Maywood Church Of The
103 Mc Coy Memorial Baptist Church
104 Mc Kinley Avenue Baptist Church
105 Metropolitan Missionary Bapt
106 Ministerios Cordero
107 Miramonte Blvd Seventh.Day Adv
108 Mision Quadrangular Emmanuel
109 Mission Cristiana Bethel
110 Morning Star Baptist Church
111 Morning Star Church Of God
112 Mt Carmel Missionary Baptist
113 Mt Olive Baptist Church
114 Mt Olive Church.God In Christ
115 Mt Zion Missionary Baptist Church
116 Mt Zion Towers
117 Nation Pentecostal Church
118 New Deliverance Twenty First
119 New Hope Baptist Church
120 Nueva Vision En El Espirito
121 Our Lady Of Victory Church
122 Our Lady Of Victory Social Ctr
123 Palestine Missionary Baptist
124 Panamericana Spanish 7th.Day
125 Peniel Baptist Church
126 Pentecostal Chapel
127 Phillips Temple Cme Church
128 Pilgrim Community Church
129 Pilgrim's Hope Bible Church
130 Pleasant View Baptist Church
131 Positive Realism Church
132 Praise Chapel
133 Praise Chapel Fellowship
134 Praise Tabernacle Maywood
135 Prayer Tower
136,137 Primera Iglesia Bautista
138 Principe De Paz
139 Redeemer Lutheran Church
140 Resurrection Church
141 Richland Baptist Church
142 Salvation Army
143 Santa Cruz Lutheran Church
144 Santa Isabel Church
145 Santa Maria De Guadalupe
146 Santa Martha Ccd
147 Santo Nino De Atocha Iglesia
148 Second Holy Grove Missionary
149 Seventh Day Adventist Central
150 Seventh Day Adventist Spanish
151 Seventh.Day Adventist Church
152 Shiloh Missionary Baptist Church
153 Shuto La Tenrikyo Fellowship
154 Southland Christian Church
155 St Aloysius Gonzaga Church
156 St Clements Episcopal Church
157 St John Bosco
158 St John Christian Assembly
159 St Mark Baptist Church
160 St Martha's Church
161 St Mary's Ethiopian Apostolic
162 St Matthias Church
163 St Matthias Church Catechism
164 St Odilia Catholic Church
165 St Patrick's Catholic Church
166 St Rose Of Lima Church
167 Strait.Way Apostolic Church
168 Templo Bethesda
169 Templo Calvario
170 Third Baptist Church Inc
171 Traveler's Rest Baptist Church
172 Triumph The Church & Kingdom
173 True Grace Baptist Church
174 Union Hill Baptist Church
175 United House Of Prayer
176 United Methodist Church
177 Universal Christian Gnostic
178 Victory Baptist Church
179 Victory Outreach South Gate
180 Victory Tabernacle Boyle
181 Visions Of Heaven Cogic
182 Wadsworth Church Of God
183 Washington Memorial Chr.Christ
184 World Impact Of Watts
185 World Mission Marantha
186 Zion Lutheran Church
187 Zion Temple Community Church

PARKS

188 Huntington Park Parks & Rec
189 Maywood Parks & Recreation
190 Salazar Park
191 Lugo Park
192 Bethune Park
193 Roosevelt Park
194 Bandini Park
195 Bristow Park Branch Library
196 Los Angeles Parks & Recreation
197 Clara Street Park
198 Hostetter Playground
199 Salazar Park
200 Pixley Park
201 Evergreen Recreation Center
202 Obregon Park
203 Boyle Heights Sports Center Park
204 Ramon Garcia Recreation Center
205 Hollenbeck Park
206 Trinity Recreation Center
207 Central Recreation Center Park
208 Ross Snyder Recreation Center
209 Theresa Lindsay Park
210 South Park
211 Fred Roberts Recreation Center
212 Slauson Recreation Center
213 Bethune Park
214 Westside Park
215 Roosevelt Park
216 Colonel Leon H Washington Park
217 Miles Park
218 Corona Park
219 Maywood Park
220 Debs Park
221 Little Bear Park
222 Municipal Park
223 Lugo Park
224 Clara Park
225 Cudahy Park
226 Veterans Park
227 Marlow Park

CHURCH
PARK
VERNON POWER PLANT
3-MILE BUFFER

N

0 2,000 Feet

SCALE IS APPROXIMATE

FIGURE 8.6-2b
CHURCHES AND PARKS WITHIN 3-MILES OF VPP SITE
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

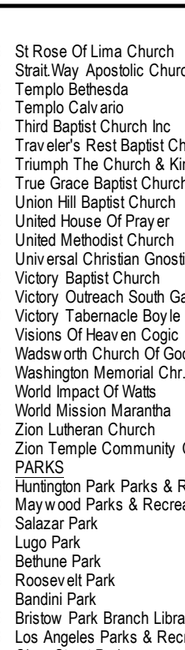
RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\VPP3\VPP3_8_6-1B_SENSITIVE_RECEPTORS_CHURCHES.MXD 6/13/2006 13:58:01

CHURCHES

1 Abyssinia Baptist Church
2 All Nation Baptist Church
3 Apostolic Assembly
4 Asamblea Apostolica
5 Associated Churches Of Christ
6 Bell Foursquare Church
7,8 Bell Friends Church
9 Bethany Baptist Church
10 Bethel Missionary Baptist Chruch
11 Bethlehem Temple Inc
12 Bible Baptist Church
13 Boyle Heights Foursquare Church
14 Camino Al Cielo
15 Catedral Sacrada Familia
16 Centro Christano La Hermosa
17 Centro Evangelistico Church
18 Centro Evangelistico Ebenezer
19 Christian Science Church
20 Church Of Christ
21 Church Of Christ Mount Zion
22 Church Of God In Christ
23 Church Of God Of Prophecy
24 Church Of Jesus Christ
25,26,27 Church Of Jesus Christ Of Lds
28 Church Of The Nazarene
29 Community Church
30 Community Presbyterian Church
31 Cudahy Roman Catholic Mission
32 Davar Kingdom Of God
33 Descending Like Dove Minstry
34 E Los Angeles Tenrikyo Flshp
35 Ebenezer Baptist Church
36 El Sendero De La Cruz
37 Emmanuel Church Of God.Christ
38 Evangelica Baptist Church
39 Evangelical Temple.Tabernacle
40 Evangelistic Outreach Center
41 Everlasting True Vine Baptist
42 Faith Outreach Ctr
43 First Assembly Of God
44 First Baptist Church
45 First Baptist Church Of Bell
46 First Baptist Church.Commerce
47 First Baptist Church.Maywood
48 First Goodwill Baptist Church
49 First Innercity Assembly.God
50 Freedom Missionary Baptist Church
51 Friendly Will Baptist Church
52 Full Gospel Church Of God
53 Grace Lutheran Church
54 Greater Holy St John Baptist
55 Greater Mount Rose Baptist Church
56 Greater Mt Zion Baptist Church
57 Greater Olivet Baptist Church
58 Harvest Tabernacle
59 Hermandad Mexicana Nacional
60 Holy Angels Church Of The Deaf
61 Holy Apostolic Church
62 Hooper Avenue Foursquare Church
63 House Of Prayer Uhc Of A
64 Iberoamerica Assembly Of God
65 Iglesia Apostolica
66 Iglesia Asamblea De Dios Sinai
67 Iglesia Bautista.Resurreccion
68,69 Iglesia Bethania
70 Iglesia Christiana Fundamental
71 Iglesia Cristiana Alpha
72 Iglesia Cristiana Pentecostes
73 Iglesia Cristiana Vencedores
74 Iglesia De Dio Companerismo
75 Iglesia Del Cuerpo De Cristo
76,77 Iglesia Del Dios Vivo
78 Iglesia Del Senor
79 Iglesia El Buen Pastor
80 Iglesia Fuente De Agua Viva
81 Iglesia Fundamental La Gran
82 Iglesia Metodista Unida De
83 Iglesia Monte Sinai
84 Iglesia Universal Del Reino
85 Ingelsia De Dios
86 International Pentecostal City
87 Israel Missionary Baptist
88 Israel Missionary Baptist Church
89,90,91 Jehovah's Witnesses
92 Jehovah's Witnesses Walnut Pk
93 Jesuaristo Rey De Reyes
94 Jesus Bencomo Century 21
95 June Cobb Church Of Religious
96 Korean Chunbukyo La Church
97 Latin American Council Church
98 Liberty Church.God In Christ
99 Living Gospel Church
100 Los Angeles City Baptist Church
101 Masjid Bilal Islamic Center
102 Maywood Church Of The
103 Mc Coy Memorial Baptist Church
104 Mc Kinley Avenue Baptist Church
105 Metropolitan Missionary Bapt
106 Ministerios Cordero
107 Miramonte Blvd Seventh.Day Adv
108 Mision Quadrangular Emmanuel
109 Mission Cristiana Bethel
110 Morning Star Baptist Church
111 Morning Star Church Of God
112 Mt Carmel Missionary Baptist
113 Mt Olive Baptist Church
114 Mt Olive Church.God In Christ
115 Mt Zion Missionary Baptist Church
116 Mt Zion Towers
117 Nation Pentecostal Church
118 New Deliverance Twenty First
119 New Hope Baptist Church
120 Nueva Vision En El Espirito
121 Our Lady Of Victory Church
122 Our Lady Of Victory Social Ctr
123 Palestine Missionary Baptist
124 Panamericana Spanish 7th.Day
125 Peniel Baptist Church
126 Pentecostal Chapel
127 Phillips Temple Cme Church
128 Pilgrim Community Church
129 Pilgrim's Hope Bible Church
130 Pleasant View Baptist Church
131 Positive Realism Church
132 Praise Chapel
133 Praise Chapel Fellowship
134 Praise Tabernacle Maywood
135 Prayer Tower
136,137 Primera Iglesia Bautista
138 Principe De Paz
139 Redeemer Lutheran Church
140 Resurrection Church
141 Richland Baptist Church
142 Salvation Army
143 Santa Cruz Lutheran Church
144 Santa Isabel Church
145 Santa Maria De Guadalupe
146 Santa Martha Ccd
147 Santo Nino De Atocha Iglesia
148 Second Holy Grove Missionary
149 Seventh Day Adventist Central
150 Seventh Day Adventist Spanish
151 Seventh.Day Adventist Church
152 Shiloh Missionary Baptist Church
153 Shuto La Tenrikyo Fellowship
154 Southland Christian Church
155 St Aloysius Gonzaga Church
156 St Clements Episcopal Church
157 St John Bosco
158 St John Christian Assembly
159 St Mark Baptist Church
160 St Martha's Church
161 St Mary's Ethiopian Apostolic
162 St Matthias Church
163 St Matthias Church Catechism
164 St Odilia Catholic Church
165 St Patrick's Catholic Church
166 St Rose Of Lima Church
167 Strait.Way Apostolic Church
168 Templo Bethesda
169 Templo Calvario
170 Third Baptist Church Inc
171 Traveler's Rest Baptist Church
172 Triumph The Church & Kingdom
173 True Grace Baptist Church
174 Union Hill Baptist Church
175 United House Of Prayer
176 United Methodist Church
177 Universal Christian Gnostic
178 Victory Baptist Church
179 Victory Outreach South Gate
180 Victory Tabernacle Boyle
181 Visions Of Heaven Cogic
182 Wadsworth Church Of God
183 Washington Memorial Chr.Christ
184 World Impact Of Watts
185 World Mission Marantha
186 Zion Lutheran Church
187 Zion Temple Community Church

PARKS

188 Huntington Park Parks & Rec
189 Maywood Parks & Recreation
190 Salazar Park
191 Lugo Park
192 Bethune Park
193 Roosevelt Park
194 Bandini Park
195 Bristow Park Branch Library
196 Los Angeles Parks & Recreation
197 Clara Street Park
198 Hostetter Playground
199 Salazar Park
200 Pixley Park
201 Evergreen Recreation Center
202 Obregon Park
203 Boyle Heights Sports Center Park
204 Ramon Garcia Recreation Center
205 Hollenbeck Park
206 Trinity Recreation Center
207 Central Recreation Center Park
208 Ross Snyder Recreation Center
209 Theresa Lindsay Park
210 South Park
211 Fred Roberts Recreation Center
212 Slauson Recreation Center
213 Bethune Park
214 Westside Park
215 Roosevelt Park
216 Colonel Leon H Washington Park
217 Miles Park
218 Corona Park
219 Maywood Park
220 Debs Park
221 Little Bear Park
222 Municipal Park
223 Lugo Park
224 Clara Park
225 Cudahy Park
226 Veterans Park
227 Marlow Park



CHURCH
PARK
VERNON POWER PLANT
3-MILE BUFFER

N

0 2,000 Feet

SCALE IS APPROXIMATE

FIGURE 8.6-2c
CHURCHES AND PARKS WITHIN 3-MILES OF VPP SITE
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

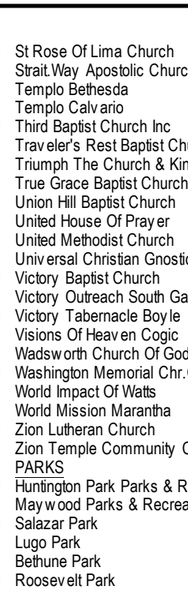
CH2MHILL

CHURCHES

1 Abyssinia Baptist Church
2 All Nation Baptist Church
3 Apostolic Assembly
4 Asamblea Apostolica
5 Associated Churches Of Christ
6 Bell Foursquare Church
7,8 Bell Friends Church
9 Bethany Baptist Church
10 Bethel Missionary Baptist Chruch
11 Bethlehem Temple Inc
12 Bible Baptist Church
13 Boyle Heights Foursquare Church
14 Camino Al Cielo
15 Catedral Sacrada Familia
16 Centro Christano La Hermosa
17 Centro Evangelistico Church
18 Centro Evangelistico Ebenezer
19 Christian Science Church
20 Church Of Christ
21 Church Of Christ Mount Zion
22 Church Of God In Christ
23 Church Of God Of Prophecy
24 Church Of Jesus Christ
25,26,27 Church Of Jesus Christ Of Lds
28 Church Of The Nazarene
29 Community Church
30 Community Presbyterian Church
31 Cudahy Roman Catholic Mission
32 Davar Kingdom Of God
33 Descending Like Dove Minstry
34 E Los Angeles Tenrikyo Flshp
35 Ebenezer Baptist Church
36 El Sendero De La Cruz
37 Emmanuel Church Of God.Christ
38 Evangelica Baptist Church
39 Evangelical Temple.Tabernacle
40 Evangelistic Outreach Center
41 Everlasting True Vine Baptist
42 Faith Outreach Ctr
43 First Assembly Of God
44 First Baptist Church
45 First Baptist Church Of Bell
46 First Baptist Church.Commerce
47 First Baptist Church.Maywood
48 First Goodwill Baptist Church
49 First Innercity Assembly.God
50 Freedom Missionary Baptist Church
51 Friendly Will Baptist Church
52 Full Gospel Church Of God
53 Grace Lutheran Church
54 Greater Holy St John Baptist
55 Greater Mount Rose Baptist Church
56 Greater Mt Zion Baptist Church
57 Greater Olivet Baptist Church
58 Harvest Tabernacle
59 Hermandad Mexicana Nacional
60 Holy Angels Church Of The Deaf
61 Holy Apostolic Church
62 Hooper Avenue Foursquare Church
63 House Of Prayer Uhc Of A
64 Iberoamerica Assembly Of God
65 Iglesia Apostolica
66 Iglesia Asamblea De Dios Sinai
67 Iglesia Bautista.Resurreccion
68,69 Iglesia Bethania
70 Iglesia Christiana Fundamental
71 Iglesia Cristiana Alpha
72 Iglesia Cristiana Pentecostes
73 Iglesia Cristiana Vencedores
74 Iglesia De Dio Companerismo
75 Iglesia Del Cuerpo De Cristo
76,77 Iglesia Del Dios Vivo
78 Iglesia Del Senor
79 Iglesia El Buen Pastor
80 Iglesia Fuente De Agua Viva
81 Iglesia Fundamental La Gran
82 Iglesia Metodista Unida De
83 Iglesia Monte Sinai
84 Iglesia Universal Del Reino
85 Ingelsia De Dios
86 International Pentecostal City
87 Israel Missionary Baptist
88 Israel Missionary Baptist Church
89,90,91 Jehovah's Witnesses
92 Jehovah's Witnesses Walnut Pk
93 Jesuaristo Rey De Reyes
94 Jesus Bencomo Century 21
95 June Cobb Church Of Religious
96 Korean Chunbukyo La Church
97 Latin American Council Church
98 Liberty Church.God In Christ
99 Living Gospel Church
100 Los Angeles City Baptist Church
101 Masjid Bilal Islamic Center
102 Maywood Church Of The
103 Mc Coy Memorial Baptist Church
104 Mc Kinley Avenue Baptist Church
105 Metropolitan Missionary Bapt
106 Ministerios Cordero
107 Miramonte Blvd Seventh.Day Adv
108 Mision Quadrangular Emmanuel
109 Mission Cristiana Bethel
110 Morning Star Baptist Church
111 Morning Star Church Of God
112 Mt Carmel Missionary Baptist
113 Mt Olive Baptist Church
114 Mt Olive Church.God In Christ
115 Mt Zion Missionary Baptist Church
116 Mt Zion Towers
117 Nation Pentecostal Church
118 New Deliverance Twenty First
119 New Hope Baptist Church
120 Nueva Vision En El Espirito
121 Our Lady Of Victory Church
122 Our Lady Of Victory Social Ctr
123 Palestine Missionary Baptist
124 Panamericana Spanish 7th.Day
125 Peniel Baptist Church
126 Pentecostal Chapel
127 Phillips Temple Cme Church
128 Pilgrim Community Church
129 Pilgrim's Hope Bible Church
130 Pleasant View Baptist Church
131 Positive Realism Church
132 Praise Chapel
133 Praise Chapel Fellowship
134 Praise Tabernacle Maywood
135 Prayer Tower
136,137 Primera Iglesia Bautista
138 Principe De Paz
139 Redeemer Lutheran Church
140 Resurrection Church
141 Richland Baptist Church
142 Salvation Army
143 Santa Cruz Lutheran Church
144 Santa Isabel Church
145 Santa Maria De Guadalupe
146 Santa Martha Ccd
147 Santo Nino De Atocha Iglesia
148 Second Holy Grove Missionary
149 Seventh Day Adventist Central
150 Seventh Day Adventist Spanish
151 Seventh.Day Adventist Church
152 Shiloh Missionary Baptist Church
153 Shuto La Tenrikyo Fellowship
154 Southland Christian Church
155 St Aloysius Gonzaga Church
156 St Clements Episcopal Church
157 St John Bosco
158 St John Christian Assembly
159 St Mark Baptist Church
160 St Martha's Church
161 St Mary's Ethiopian Apostolic
162 St Matthias Church
163 St Matthias Church Catechism
164 St Odilia Catholic Church
165 St Patrick's Catholic Church
166 St Rose Of Lima Church
167 Strait.Way Apostolic Church
168 Templo Bethesda
169 Templo Calvario
170 Third Baptist Church Inc
171 Traveler's Rest Baptist Church
172 Triumph The Church & Kingdom
173 True Grace Baptist Church
174 Union Hill Baptist Church
175 United House Of Prayer
176 United Methodist Church
177 Universal Christian Gnostic
178 Victory Baptist Church
179 Victory Outreach South Gate
180 Victory Tabernacle Boyle
181 Visions Of Heaven Cogic
182 Wadsworth Church Of God
183 Washington Memorial Chr.Christ
184 World Impact Of Watts
185 World Mission Marantha
186 Zion Lutheran Church
187 Zion Temple Community Church

PARKS

188 Huntington Park Parks & Rec
189 Maywood Parks & Recreation
190 Salazar Park
191 Lugo Park
192 Bethune Park
193 Roosevelt Park
194 Bandini Park
195 Bristow Park Branch Library
196 Los Angeles Parks & Recreation
197 Clara Street Park
198 Hostetter Playground
199 Salazar Park
200 Pixley Park
201 Evergreen Recreation Center
202 Obregon Park
203 Boyle Heights Sports Center Park
204 Ramon Garcia Recreation Center
205 Hollenbeck Park
206 Trinity Recreation Center
207 Central Recreation Center Park
208 Ross Snyder Recreation Center
209 Theresa Lindsay Park
210 South Park
211 Fred Roberts Recreation Center
212 Slauson Recreation Center
213 Bethune Park
214 Westside Park
215 Roosevelt Park
216 Colonel Leon H Washington Park
217 Miles Park
218 Corona Park
219 Maywood Park
220 Debs Park
221 Little Bear Park
222 Municipal Park
223 Lugo Park
224 Clara Park
225 Cudahy Park
226 Veterans Park
227 Marlow Park



CHURCH
PARK
VERNON POWER PLANT
3-MILE BUFFER

0 2,000 Feet

SCALE IS APPROXIMATE

FIGURE 8.6-2d
CHURCHES AND PARKS WITHIN 3-MILES OF VPP SITE
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\VPP3\VPP3_8_6-1B_SENSITIVE_RECEPTORS_CHURCHES.MXD 6/13/2006 13:58:01

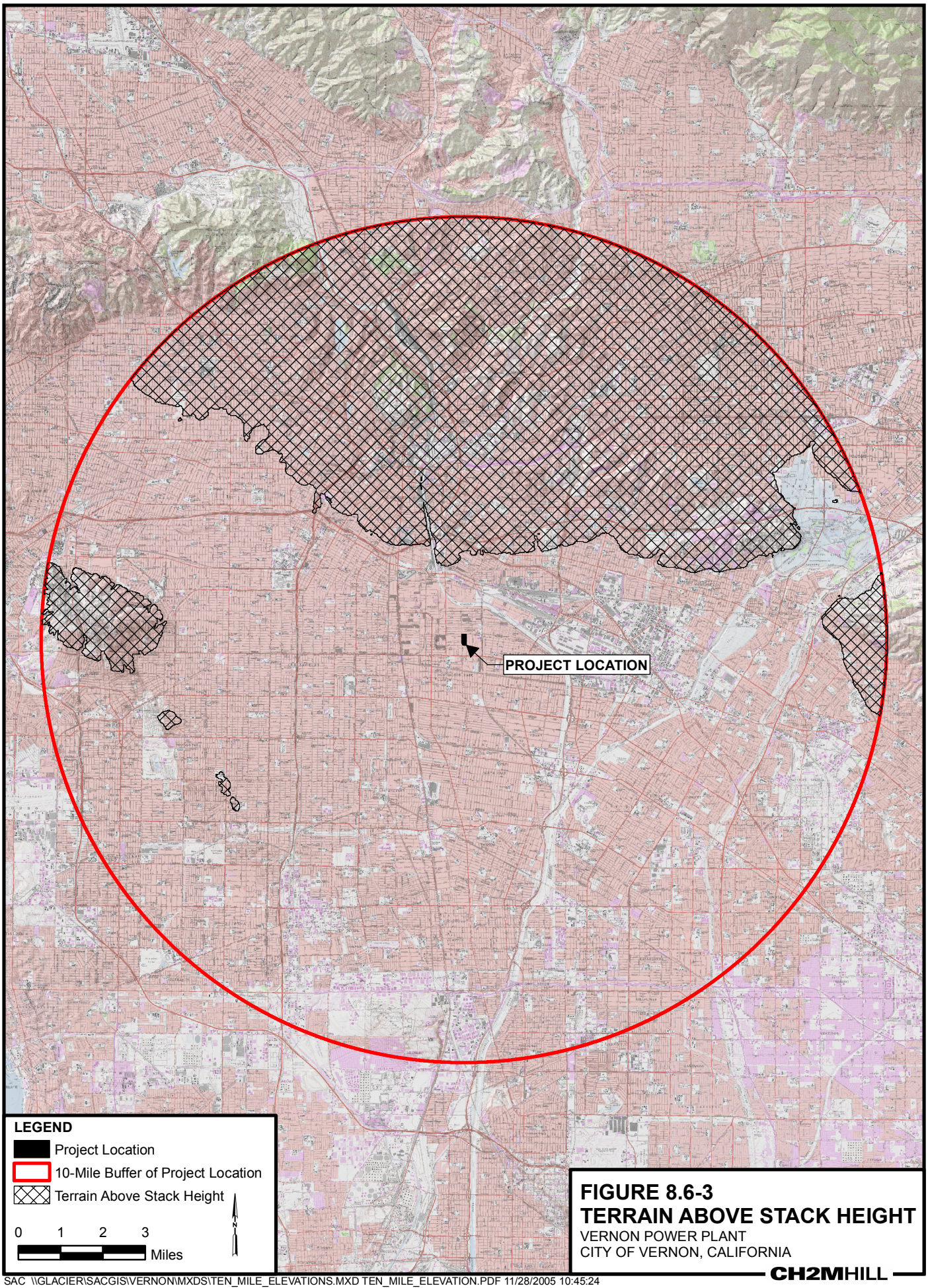


FIGURE 8.6-3
TERRAIN ABOVE STACK HEIGHT
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

SAC \\GLACIER\SACGIS\VERNON\MXDS\TEN_MILE_ELEVATIONS.MXD TEN_MILE_ELEVATION.PDF 11/28/2005 10:45:24

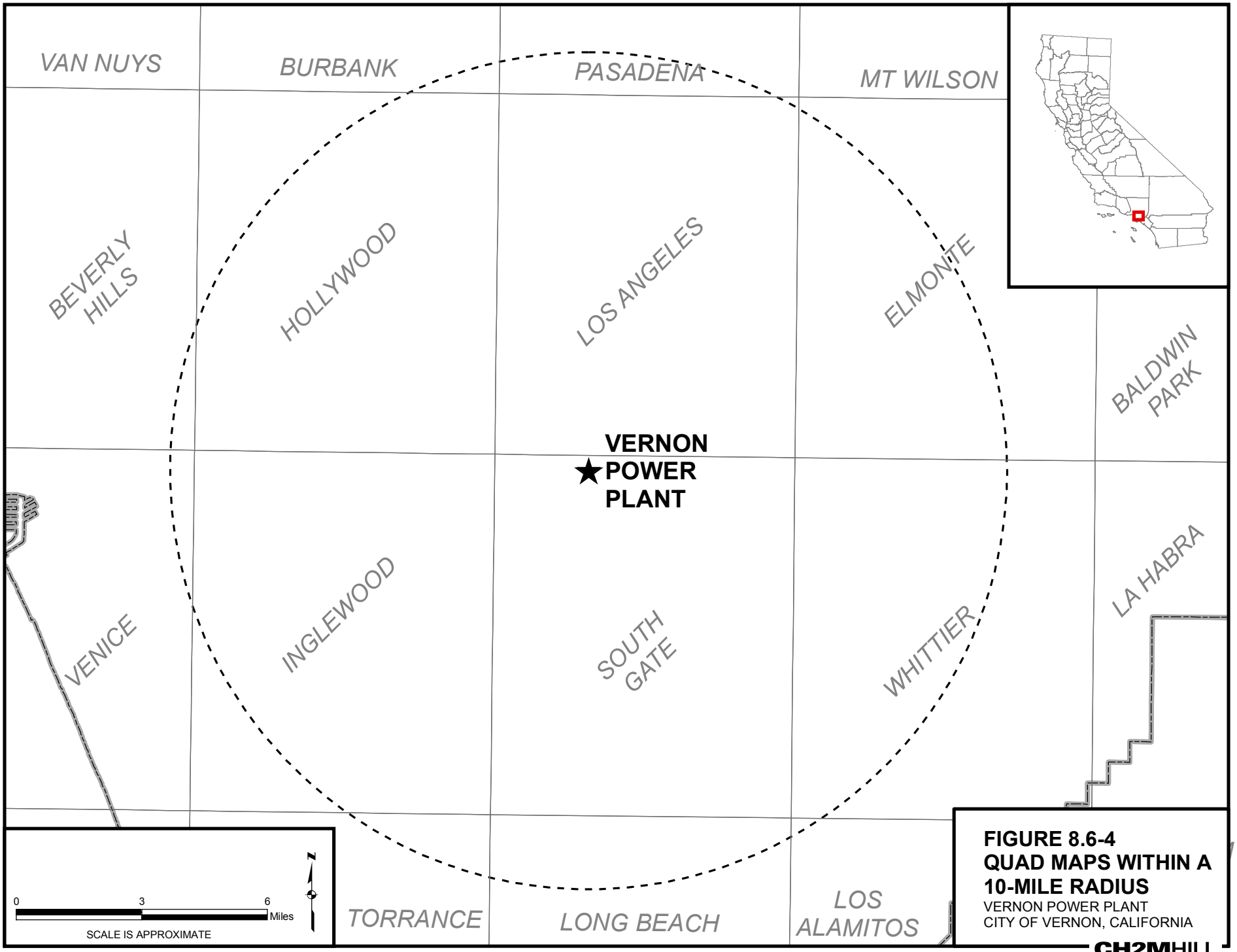


FIGURE 8.6-4
QUAD MAPS WITHIN A 10-MILE RADIUS
VERNON POWER PLANT
CITY OF VERNON, CALIFORNIA

CH2MHILL

RDD \\LOKI\PROJECTS\RDDGIS\VERNON\MXDS\FIG8_6-2_QUAD.MXD 10/25/2005 15:13:33